

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIFTH SEMESTER B.TECH DEGREE EXAMINATION(S) MAY 2019**

**Course Code: EC365**

**Course Name: BIOMEDICAL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any two full questions, each carries 15 marks.*

- |   | Marks |
|---|-------|
| 1 a) Explain about electrode-electrolyte interface and the electrical activity associated with one contraction in a muscle. | (10)  |
| b) Explain direct blood pressure measurement.   | (5)   |
| 2 a) What is a microelectrode? Explain any two.   | (10)  |
| b) Explain ultrasonic blood flow meters with neat diagram.  | (5)   |
| 3 a) With suitable diagram explain electro conduction system of heart.  | (10)  |
| b) Draw the unipolar lead system.   | (5)   |

**PART B**

*Answer any two full questions, each carries 15 marks.*

- |  |      |
|--|------|
| 4 a) Explain 10-20 electrode system with suitable diagram.                 | (10) |
| b) Explain about spectrophotometer .                                       | (5)  |
| 5 a) What are different respiratory parameters? Explain.                   | (7)  |
| b) What is meant by nerve conduction velocity. What is its significance?   | (3)  |
| c) Explain ventilator parameters?  | (5)  |
| 6 a) What is the difference between haemodialysis and peritoneal dialysis? | (10) |
| b) Explain about ventricular defibrillation.                               | (5)  |

**PART C**

*Answer any two full questions, each carries 20 marks.*

- 7 a) How ultrasonic wave propagates through tissues. (8)
- b) Explain X-Ray imaging. (8)
- c) Explain basic approaches to protection against shock. (4)
- 8 a) Explain about micro shock hazards. (8)
- b) Draw the diagram of Single channel telemetry and explain. (8)
- c) What is real time ultrasonic imaging? (4)
- 9 a) Explain the biological effects of NMR imaging. (7)
- b) What is basic pulse echo system? (5)
- c) What are macro shock hazards? (8)

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